STATE OF CALIFORNIA
EPIC TRIENNIAL INVESTMENT PLAN 2015-17
Proposed Energy Research Initiative
Questionnaire

CALIFORNIA ENERGY COMMISSION

QUESTIONNAIRE SUBMITTED BY COALITION FOR RENEWABLE NATURAL GAS

Title of Proposed Initiative (Short and concise): ***Funding to preserve existing and increase new use of landfill gas to electricity for California customers by subsidizing research and application of advanced environmental controls and more efficient generation to lower greenhouse gas emissions and comply with stringent air standards.***

Investment Areas (Check one or more) – *For definitions, see First Triennial Investment Plan, page 12*:

☐ Applied Research and Development

XX Technology Demonstration and Deployment

☐ Market Facilitation

Electricity System Value Chain (**Check only one**): *See CPUC Decision 12-05-037, Ordering Paragraph 12.a. http://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/167664.PDF.*

☐ Grid operations/market design

XX Generation

☐ Transmission

☐ Distribution

☐ Demand-side management

Issues and Barriers:

Describe the issues and barriers that are impeding full market adoption of the proposed clean energy technology or strategy (such as cost, integration, or lack of information).

EPIC should fund technology that will preserve onsite landfill-gas-to-energy projects and bring new projects to California electricity customers by subsidizing advanced pollution control and generation technologies. Landfill gas is the largest existing source of biogas currently collected in California, yet, according to CalRecycle, only about 53% of collected landfill gas is used beneficially to produce electricity or fuels. The remaining 47% is flared and its energy wasted. The continued beneficial use of biomethane, including landfill gas, is threatened by increasingly rigorous air emissions standards for criteria pollutants being adopted by many air districts in California, most notably the South Coast (in particular note SCAQMD Rule 1110.2), the San Joaquin Valley, and Bay Area. These districts have imposed increasingly rigorous standards for NOx, CO, and VOCs from engines used to generate electricity from waste-derived biomethane. New technologies are being developed to meet these standards but they have not been fully demonstrated over extended periods of time and under a wide range of site-specific conditions. These technologies, while not fully demonstrated, are extremely expensive.

Initiative Description and Purpose:

How will this technology or strategy help address the issue/issues? Describe knowledge to be advanced to overcome critical barriers. Include the recommended funding level (minimum and maximum) for each project under this initiative.

Demonstration of advanced technologies that lower costs of electricity generation from landfill gas will decrease emissions of greenhouse gas, assure compliance with criteria air pollutant standards and lead to the lowering of costs of operation for these emerging technologies.

Recommended funding: $7 million - $10 million

Stakeholders:

Identify the stakeholders who support the initiative.
California electricity consumers, municipal governments and agencies including air districts, renewable energy industry, general public, solid waste industry

Background and the State-of-the-Art:

- What research development and demonstration has been done or is currently being done to advance this technology or strategy (cite past research as applicable)?

  Pollution control equipment and advanced generation technology is available for demonstration and operation that will lead to retrofitting existing facilities and develop new facilities; cost is a significant barrier to development and operation.
- Describe any public and/or private successes and failures the technology or strategy has encountered in its path through the energy innovation pipeline: lab-scale testing, pilot-scale testing, pre-commercial demonstration, commercial scale deployment, market research, workforce development.

  Pre-commercial and commercial scale deployment of technologies has shown the ability of advanced controls to lower emissions, increase efficiency and assure facility compliance with stringent pollution control standards. Cost is a significant issue, and without public support, existing landfill-gas-to-electricity facilities will cease operations and new facilities will not be built.
- Identify other related programs and initiatives that deal with the proposed technology or strategy, such as state and federal programs or funding initiatives (DOE, ARPA-E, etc.).

Justification:

Describe how this technology or strategy will provide California IOU electric ratepayer benefits and provide any estimates of quantified annual savings/benefits in California, including:

- Name of sector and estimated size and energy use.

  The solid waste sector/renewable energy sector/municipal sector. Landfill gas is the largest existing source of biogas currently collected in California, yet, according to CalRecycle, only about 53% of collected landfill gas is used beneficially to produce electricity or fuels. The remaining 47% is flared and its energy wasted.
- Quantifiable performance improvements for the proposed technology/strategy.

  Support for advanced pollution controls and more efficient generation technologies will provide for compliance with specified air standards and allow for the continued operation of landfill gas to energy facilities and encourage new operations.
- Maximum market potential, if successful. ***With proper funding, California landfills can successfully generate energy from the waste disposed at the facilities.***
- Number of direct jobs created in California. ***TBD***
- Why this research is appropriate for public funding.

  Public law and regulation has imposed additional and more stringent pollution control requirements on landfill gas to energy. Unfortunately, promulgation of these regulations may have the negative impact of closing facilities that beneficially use biogas because of the cost of compliance. New landfill gas projects will not be development because of the cost. Without public support through use of EPIC funds and other public sources, regulations meant to promote a cleaner environment could have an oppose effect.

Ratepayer Benefits (Check one or more)**:**

X☐ Promote greater reliability

X☐ Potential energy and cost savings

X☐ Increased safety

☐ Societal benefits

X☐ Environmental benefits – specify – lower criteria and non-criteria pollutants

X☐ GHG emissions mitigation/adaptation in the electricity sector at the lowest possible cost

☐ Low emission vehicles/transportation

X☐ Waste reduction

☐ Economic development

Describe specific benefits (qualitative and quantitative) of the proposed initiative

Public Utilities Code Sections 740.1 and 8360:

Please describe how this technology or strategy addresses the principles articulated in California Public Utilities Code Sections 740.1 and 8360. The California Public Utilities Code is available online at www.leginfo.ca.gov/cgi-bin/calawquery?codesection=puc.

Support for advanced controls for landfill-gas-to-electricity projects offers a high probability of providing benefits to ratepayers and supports, but does not duplicate current research. Projects support:

(1) Environmental improvement.
(2) Public and employee safety.
(3) Conservation by efficient resource use.
(4) Development of new resources, particularly renewable resources.
(5) Improve operating efficiency and reliability and otherwise reduce operating costs.